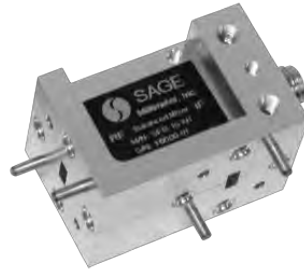


Balanced Upconverters, SFU Series

FEATURES:

- ◆ Frequency coverage: 18 to 170 GHz
- ◆ Balanced configuration for low conversion loss
- ◆ Full waveguide band operation
- ◆ External bias option for low LO operation



APPLICATIONS:

- ◆ Radar systems
- ◆ Communication systems
- ◆ Test instrumentation

DESCRIPTION:

SFU series balanced upconverters are GaAs beam lead Schottky diode-based mixers. The upconverters employ a broadband circuitry and balanced structure to offer low conversion loss and harmonics for full waveguide band and broad IF bandwidth operations. An externally biased mixer option can be offered when the available LO power is low, particularly in the higher waveguide bands. The below standard offering covers the frequency range of 18 to 170 GHz. While these models focus on full bandwidth operations for most applications, custom models are available to meet specific application needs. Check the website for more models.

CATALOG MODELS:

Band	Model Number	RF & LO Frequency Range (GHz)	IF Frequency Range (GHz)	Conversion Loss (dB)	LO Power (dBm)	Port Isolation (dB)	Bias (V/mA)	Outline
K	SFU-42-N1	18.0 to 26.5	DC to 8.5	6.0	+10 to +13	15.0	N/A	FB-NK
Ka	SFU-28-N1	26.5 to 40.0	DC to 13.5	7.5	+10 to +13	15.0	N/A	FB-NA
Q	SFU-22-N1	33.0 to 50.0	DC to 17.0	7.0	+10 to +13	15.0	N/A	FB-NQ
Q	SFU-22-E2	33.0 to 50.0	DC to 17.0	9.0	+0 to +3	15.0	+5.0/1.0	FB-EQ-2
U	SFU-19-N1	40.0 to 60.0	DC to 20.0	8.0	+10 to +13	15.0	N/A	FB-NU
U	SFU-19-E2	40.0 to 60.0	DC to 20.0	9.0	+0 to +3	15.0	+5.0/1.0	FB-EU-2
V	SFU-15-N1	50.0 to 75.0	DC to 25.0	8.5	+10 to +13	15.0	N/A	FB-NV
V	SFU-15-E2	50.0 to 75.0	DC to 25.0	9.5	+0 to +3	15.0	+5.0/1.0	FB-EV-2
E	SFU-12-N1	60.0 to 90.0	DC to 30.0	9.0	+10 to +13	15.0	N/A	FB-NE
E	SFU-12-E2	60.0 to 90.0	DC to 30.0	10.0	+0 to +3	15.0	+5.0/1.0	FB-EE-2
W	SFU-10-N1	75.0 to 110.0	DC to 35.0	9.5	+10 to +13	15.0	N/A	FB-NW
W	SFU-10-E2	75.0 to 110.0	DC to 35.0	12.0	+0 to +3	15.0	+5.0/1.0	FB-EW-2
F	SFU-08-N1	90.0 to 140.0	DC to 40.0	11.0	+10 to +13	15.0	N/A	FB-NF
F	SFU-08-E2	90.0 to 140.0	DC to 20.0	13.0	+0 to +3	15.0	+5.0/2.0	FB-EF-2
D	SFU-06-N1	110.0 to 170.0	DC to 40.0	12.0	+10 to +13	15.0	N/A	FB-ND
D	SFU-06-E2	110.0 to 170.0	DC to 20.0	14.0	+0 to +3	15.0	+5.0/2.0	FB-ED-2

CUSTOM MODELS:

SAGE Millimeter's balanced upconverter model numbers are configured per the following format. Customers may refer to the format and specify their own model numbers accordingly when placing an order.

SFU - RFN LON CL - CR CO CI - XY

RFN is the RF center frequency in MHz x 10N. For example: 26.0 GHz = 263

LON is the LO center frequency in MHz x 10N. For example: 28.0 GHz = 283

CL is the small signal conversion loss in dB. For example: 8.5 dB = 09

CR is the RF port connector type. For example: WR-28 = 28

CO is the LO port connector type. For example: K(F) = KF

CI is the IF port connector type. For example: SMA (F) = SF

X is the upconverter type. "N" is for non-externally biased and "E" is for externally-biased.

Y is for factory reserve.

Example: SFU-33339309-2822SF-E2 is an externally biased balanced upconverter with an RF center frequency of 33 GHz, an LO center frequency of 38.5 GHz and a conversion loss of 9 dB. The upconverter has a WR-28 waveguide at the RF port, a WR-22 waveguide at the LO port and a female SMA connector at the IF port. "2" is a factory assigned number.

Subharmonically Pumped Upconverters, SFV Series

FEATURES:

- ◆ Frequency coverage: 18 to 110 GHz
- ◆ Balanced configuration for low conversion loss
- ◆ Up to full waveguide band operation
- ◆ LO frequency at half of RF frequency



APPLICATIONS:

- ◆ Communication systems
- ◆ Radar systems
- ◆ Test instrumentation

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DESCRIPTION:

SFV series subharmonically pumped upconverters are GaAs beam lead Schottky diode- or MMIC device-based mixers. The subharmonically pumped upconverters employ a broadband circuitry and balanced structure to offer low conversion loss and harmonics and are widely used in many communication systems where superior harmonic and spurious performance is critical. In addition, these upconverters have an extremely low LO signal leakage at the RF port. Furthermore, an LO frequency at half the RF frequency reduces the system cost tremendously.

The below standard offering covers the frequency range of 18 to 110 GHz with a typical RF bandwidth that is up to the full waveguide band. Although the non-biased version is the baseline design, externally-biased options are available. Additionally, the standard models focus on full bandwidth operations for most applications, but custom models can be offered to meet specific application needs. Check the website for more models.

CATALOG MODELS:

Band	Model Number	RF Frequency Range (GHz)	LO Frequency Range (GHz)	IF Frequency Range (GHz)	C. L. (dB)	LO Power (dBm)	Port Isolation (dB)	RF/LO Connectors	Outline
K	SFV-42-N1	18.0 to 26.5	9.0 to 13.3	DC to 5.0	10.0	10 to 15	15.0	WR-42/SMA(F)	FS-K1
Ka	SFV-28-N1	26.5 to 40.0	13.3 to 20.0	DC to 5.0	12.0	10 to 15	15.0	WR-28/K(F)	FS-A1
Q	SFV-22-N1	33.0 to 50.0	16.5 to 25.0	DC to 5.0	13.0	10 to 15	15.0	WR-22/K(F)	FS-Q1
U	SFV-19-N1	40.0 to 60.0	20.0 to 30.0	DC to 5.0	13.0	10 to 15	15.0	WR-19/K(F)	FS-U1
V	SFV-15-N1	50.0 to 75.0	25.0 to 37.5	DC to 5.0	14.0	10 to 15	15.0	WR-15/K(F)	FS-V1
E	SFV-12-N1	60.0 to 90.0	30.0 to 45.0	DC to 5.0	14.0	10 to 15	15.0	WR-12/2.4 mm(F)	FS-E1
W	SFV-10-N1	75.0 to 110.0	37.5 to 55.0	DC to 5.0	15.0	10 to 15	15.0	WR-10/V(F)	FS-W1

CUSTOM MODELS:

SAGE Millimeter's subharmonically pumped upconverter model numbers are configured per the following format. Customers may refer to the format and specify their own model numbers accordingly when placing an order.

SFV - RFN LON CL - CR CO CI - XY

RFN is the RF center frequency in MHz x 10N. For example: 26.0 GHz = 263

LON is the LO center frequency in MHz x 10N. For example: 28.0 GHz = 283

CL is the small signal conversion loss in dB. For example: 14 dB = 14

CR is the RF port connector type. For example: WR-28 = 28

CO is the LO port connector type. For example: K(F) = KF

CI is the IF port connector type. For example: SMA (F) = SF

X is the upconverter type. "N" is for non-externally biased and "E" is for externally-biased.

Y is for factory reserve.

Example: SFV-58329314-15KFSF-N1 is a non-externally biased, subharmonically pumped upconverter with an RF center frequency of 58 GHz, an LO center frequency of 29 GHz and a conversion loss of 14 dB. The upconverter has a WR-15 waveguide at the RF port, a female K connector at the LO port and a female SMA connector at the IF port. "1" is a factory assigned number.

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